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ABSTRACT

This publication focuses on the role of professional associations and societies in accrediting and approving educational programs and registering and certifying qualified health personnel in the allied health field. These functions of the associations directly affect the quantity and quality of health manpower. A general consideration of accreditation is followed by descriptions of how the US office of Education, National Commission on Accrediting, AMA Council on Medical Education, and ADA Council on Dental Education carry out these functions. Discussion of the process of and requirements for certification precedes a summary of issues affecting allied health professions and occupations. Appendix A provides information about 16 allied health occupations. Appendix B presents tables on state-licensed health occupations, associations recognized for specialized accreditation, and designation of certification or registration by non-government agencies. (JS)

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ACCREDITATION and CERTIFICATION

...in Relation to Allied Health Manpower

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ACCREDITATION AND CERTIFICATION IN RELATION TO ALLIED HEALTH MANPOWER

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Introduction

Accreditation of educational programs and certification of qualified personnel have a direct and significant influence on the supply of health manpower. These functions are usually the responsibility of professional associations which thereby affect both the quantity and quality of personnel in their particular health sphere.

As organizations of the persons who provide health services, the professional associations exercise varying degrees of control over their members. The association goals are usually stated as raising standards of individual competence, expansion in the number of curriculums offered in a given specialty, and recruitment of qualified students. Their activities generally include annual meetings and special institutes and workshops conducted for continuing education. They publish journals and some produce directories that identify names, addresses, and other pertinent information about each member of the group. Special committees or boards are often established under the aegis of the association, to determine qualifications and competency and to register or certify persons who meet predetermined standards. The associations also interpret the profession to other health-related groups and to the general public. Thus the organizations are, and must be, directly and actively concerned with the economic, political, and social welfare of their members—a fact which has a direct bearing on their organizational structure, operations, and other related factors.

In this publication the emphasis is on the role of professional associations and societies in relation to accreditation and approval of educational programs and registration and certification of qualified personnel. Their influence on licensure legislation in the various States and representation on the appropriate licensing board are not discussed (*1*). Most licensure takes into account educational qualifications such as graduation from a school or program which has the approval of the professional association, with little allowance for knowledge and skills gained outside of accredited institutions. Since the laws have been enacted with the support and cooperation of the professions, they tend to serve special interests and do not necessarily insure quality services and protection of the public. Some of these same problems are found in relation to certification practices.

In the United States, Statewide regulation of medical practice was established prior to 1800 in many of the States then in existence. Local and State medical societies had been concerned with the training and conduct of practitioners and had appealed to the States for legal control over the increasing numbers in the profession. They enforced standards early in the 19th century and then relaxed their endeavors.

By the middle of the 19th century, standards of professional competence were in need of reform and the accordance of the authority to examine and license was largely withdrawn from the medical societies. States began to assume responsibility for regulating the profession as a means of affording greater protection to the public.

Professional groups started organizing into associations at the national level just prior to the Civil War. Among the first were the American Medical Association founded in 1847, the American Pharmaceutical Association in 1852, the American Dental Association in 1859, and the American Veterinary Medical Association in 1863. These groups urged licensure legislation in the various States, with formal requirements for admission to the profession written into each State law. Thus the professional organizations established a high degree of control over themselves and over the colleges and universities engaged in training for their professions.

The turn of the century saw three more organizations added to the growing list: the American Nurses' Association established in 1896, followed

the next year by the American Osteopathic Association and the American Optometric Association. In 1912 the American Podiatry Association was organized.

Among the newer occupations establishing functional identification at a later date are dental assistant, dental hygienist, dental laboratory technician, dietitian, dietetic technician-assistant, inhalation therapist-technician, medical record librarian, medical record technician, medical technologist, occupational therapist, occupational therapy assistant, physical therapist, physical therapy assistant, radiologic technologist-technician, sanitarian, and sanitarian technician. Fact sheets on each of these categories are provided in Appendix A.

At the present time all States and the District of Columbia require that the following health personnel have a license to practice: dental hygienists, dentists, environmental health engineers, practical nurses, professional nurses, optometrists, pharmacists, physicians, osteopathic physicians, podiatrists, and veterinarians. One or more States require licensure for another 19 or so health professions and occupations, some of which have entered the licensing field only within the past 5 years (Appendix B, table 1). Others among the newer occupations, rather than encouraging the enactment of State statutes, have been moving toward certification by voluntary associations and agencies. Both licensure and certification have requirements of qualification through education. The issues of accreditation of educational programs are pertinent to all health professions, not just those referred to as allied health.

Accreditation of Educational Programs

Accreditation is a form of regulation or control which is exercised over educational institutions and/or programs by external organizations or agencies. It developed in this country as a procedure of voluntary self-regulation by peer groups of educators and members of the respective profession, in contrast to review and regulation of educational institutions as a governmental activity in other countries. The initial focus was on colleges and universities to meet the needs of educators, educational institutions, programs, and professional groups and subgroups within our society. Only later was there concern with the public interest.

The Accreditation and Institutional Eligibility Staff of the U.S. Office of Education defines accrediting as the process whereby an association or agency grants public recognition to a school, institute, college, university, or specialized program of study having met certain established qualifications of standards as determined through initial and periodic evaluations. Increasingly, accrediting also implies stimulation toward quality-improvement beyond the minimum standards specified by the accrediting body (*2*).

The purposes of accreditation as they have evolved in this country are many and varied. Among the functions relating to or using accreditation are the nine listed below:

1. Certifiying that an institution has met established standards;
2. Assisting prospective students in identifying acceptable institutions;
3. Assisting institutions in determining the acceptability of transfer credits;
4. Helping to identify institutions and programs for the investment of public and private funds;
5. Protecting institutions against harmful internal and external pressures;
6. Creating goals for self-improvement of weaker programs and stimulating a general raising of standards among educational institutions;
7. Involving the faculty and staff in institutional evaluation and planning;
8. Establishing criteria for professional certification, for licensure, and for upgrading courses offering such preparation; and
9. Providing bases for determining eligibility for Federal assistance.

The accrediting procedure usually follows a pattern of five basic steps:

1. The accrediting agency, in collaboration with professional groups and educational institutions, establishes standards.
2. The institution or program desiring accreditation prepares a self-evaluation study that provides a framework for measuring its performance against the standards established by the accrediting agency.
3. A team selected by the accrediting agency visits the institution or program to determine first-hand if the applicant meets the established standards.
4. Upon being satisfied through the information obtained from the self-evaluation and the site visit that the applicant meets its standards, the accrediting agency lists the institution or program in an official publication with other similarly accredited institutions or programs.
5. The accrediting agency periodically re-evaluates the institutions or programs that it lists to ascertain that the standards are being met.

In general, there are two types of accreditation: institutional and specialized. Institutional accreditation applies to the total institution and indicates that the institution as a whole is achieving its own

validated and specified objectives in a satisfactory manner. Specialized program accreditation is aimed at protecting the public against professional incompetence. Whereas the eligibility criteria, basic policies, and levels of expectation are similar among institutional accrediting associations, the criteria for accreditation, definitions of eligibility, and operating procedures of the specialized program accrediting agencies vary considerably. Because of the differing emphases of the two types of accreditation, accreditation of the institution as a whole by the institutional accrediting associations should not be interpreted as being equivalent to specialized accreditation of each of the several parts or programs of an institution. Institutional accreditation does not validate a specialized program in the same manner and to the same extent as specialized accreditation. For example, institutional accreditation of a college or university does not imply that each specific curriculum and/or department, such as dental hygiene or physical therapy, is accredited. However, specialized accreditation usually requires that the program be housed in an institution that has been accredited.

U.S. Office of Education

Unlike most other countries of the world, the United States has no ministry of education or other centralized authority which exercises control over educational institutions. The States, and in many cases counties and cities, assume varying degrees of control but permit institutions of higher education to operate with considerably autonomy. As a consequence, institutions vary widely in the character and quality of their programs. Private (nongovernmental) educational associations of regional or national scope have established criteria to evaluate institutions or programs, with the intent of determining whether or not they are operating at basic levels of quality.

For purposes of determining eligibility for certain Federal programs of aid to education, the U.S. Commissioner of Education is required by law to publish a list of nationally recognized accrediting agencies and associations which he determines to be reliable authority as to the quality of training offered by educational institutions and programs (2). Most institutions thus become eligible for Federal funds by way of holding accredited or preaccredited status with one of the accrediting bodies recognized by the Commissioner. In some legislation, especially that intended to help new institutions, provision is made for special qualifying steps that may be taken as alternatives to the normal accreditation process, such as evidence of working toward accredited status.

The Commissioner's list of nationally recognized accrediting agencies and associations includes institutional and specialized associations having responsibility for accrediting post-secondary institutions and programs. Inclusion of an institution on the approved list of nationally recognized accrediting agencies and associations is generally accepted as the most significant indication of institutional quality. The list is revised periodically; the most recent information appears in Appendix B, table 2.

National Commission on Accrediting

The National Commission on Accrediting was established in 1949 by colleges and universities of the nation for the primary purpose of serving as a coordinating agency for accreditation activities in higher education (*3, 4*). An independent educational agency with a membership of more than 1,425 colleges and universities, the National Commission has worked as the agent for its members in granting recognition of qualified accrediting agencies, helping to improve accrediting standards and practices, fostering increased cooperation among accrediting agencies, and recommending action concerning accreditation to its member institutions. The National Commission does not itself perform an accrediting function, but recognizes specialized agencies to grant program accreditation in 37 fields and relies upon the seven college commissions of the regional associations to grant institutional accreditation.

The National Commission on Accrediting has recognized the Council on Medical Education of the American Medical Association for the accreditation of allied medical programs for the training of medical record librarians, medical technologists, occupational therapists, and physical therapists. Similar recognition has been given to the Council on Dental Education of the American Dental Association for the accreditation of allied dental programs for the training of dental hygienists, dental assistants, and dental laboratory technicians.

AMA Council on Medical Education

Organized medicine has taken leadership in the approval of medically-related educational programs. The Council on Medical Education of the American Medical Association is the focal point for the establishment and maintenance of standards of quality and recognition of educational programs meeting these standards. Minimum requirements or essentials for an educational program are developed in collaboration with the national professional association representing the medical specialty and the allied health profession which is specifically concerned. When these requirements have been agreed upon, they are submitted to the AMA Advisory Committee on Education for the Allied Health Professions and Services. The Advisory Committee in turn transmits the "Essentials" to the Council on Medical Education and subsequently to the AMA House of Delegates for its seal of approval.

The first cooperative liaison began in 1933 when the American Occupational Therapy Association requested the AMA Council on Medical Education and Hospitals (now the Council on Medical Education) to develop standards for the education of occupational therapists. These Essentials were initially adopted by the House of Delegates in 1935. In response to a request from the American Physical Therapy Association, the Council developed standards which were adopted by the House of Delegates in 1936. The initial standards for education of medical technologists were also adopted in 1936; those for medical record librarians in 1943, for radiologic technologists in 1944, and for medical record technicians in 1953. It should be noted that from 1928 to 1936 the approval of educational programs for physical therapists was carried out by the American Physical Therapy Association and prior to 1944 the approval of schools for X-ray technicians had been a function of the American Registry of X-ray Technicians (*5, 6*).

The AMA Council on Medical Education functions as an accrediting body for a growing list of allied-health educational programs. The Council, in collaboration with the allied health professions and the medical specialties concerned, provides an accrediting mechanism for 15 categories of educational programs (*7*).

Certified Laboratory Assistant
Cytotechnologist
Histologic Technician
Inhalation Therapy Technician
Medical Assistant
Medical Record Librarian
Medical Record Technician
Medical Technologist
Nuclear Medicine Technician
Nuclear Medicine Technologist
Occupational Therapist
Orthopaedic Assistant
Physical Therapist
Radiation Therapy Technologist (or Technician)
Radiologic Technologist (formerly X-ray Technician)

An additional four were in process of being developed in late 1970:

Biomedical Instrument Technician
Blood Bank Technologist
Medical Laboratory Technician
Urologic Assistant

And other fields are being considered for the same type of supervision and identification of educational programs.

Since accreditation is primarily a self-evaluation study, as noted earlier, the institution requesting AMA accreditation assembles background material which can be used for judging whether its educational program meets or exceeds the AMA requirements as outlined in the Essentials. The AMA Department of Allied Medical Professions and Services in the Division of Medical Education processes the material for distribution to a joint review committee consisting of representatives of the collaborating organizations. A site visit is made by a survey team which includes a qualified physician and an allied-health professional; in addition there may be an AMA staff member and a dean of a comparable allied-health school or program. Meetings are held with the administrator, the director of the educational program, instructors, and students. Both the academic and clinical facilities are reviewed. The resulting detailed analysis is reported to the joint review committee which agrees on the recommendation concerning accreditation. The recommendation is transmitted to the Secretary of the AMA Advisory Committee on Education for the Allied Health Professions and Services. Then the Council on Medical Education accredits the educational program, subject to the approval of the AMA House of Delegates. Lists of AMA accredited educational programs are published by the AMA and the collaborating organizations (*8*).

ADA Council on Dental Education

In addition to the approval of educational programs for dentists, accreditation activities of the American Dental Association have gradually broadened to include training programs for dental auxiliaries. Requirements were established for programs in dental hygiene in 1947, dental laboratory technology in 1948, and dental assisting in 1960.

Training programs are considered for accreditation on the basis of requirements adopted by the ADA House of Delegates and in accordance with the policy established by the Council on Dental Education. The administration of the educational institution requests the Council to accredit the specific program. Every reasonable effort is then made by the Council to coordinate the accreditation procedures and site visits with those of the several regional accrediting agencies.

The Council publishes lists of accredited programs for the training of dental auxiliaries in January and in June of each year.

Certification of Qualified Personnel

The process of recognizing the competence of practitioners of a profession may take the form of association membership, registration, certification, or a combination of the three. Here the reference is to the control which is exercised over individuals by voluntary associations and agencies, rather than by government.

Association Membership

Some of the professional associations in the allied health field date back half a century. Examples are the International Association of Milk, Food, and Environmental Sanitarians founded in 1911 and the American Dietetic Association and the American Occupational Therapy Association founded in 1917. The 1920's saw the establishment of the American Society of X-ray Technicians (now Radiologic Technologists), American Physical Therapy Association, American Dental Hygienists' Association, American Dental Assistants Association, and American Medical Record Association (formerly the American Association of Medical Record Librarians). In the 1930's came the National Environmental Health Association (formerly the National Association of Sanitarians) and American Society of Medical Technologists. In 1947, the American Association for Inhalation Therapy was formed; and in 1960, the Hospital, Institution, and Educational Food Service Society (for dietetic technicians and assistants).

To become a member of a professional association implies having met certain standards for admission. These requirements include qualifications of education and/or experience. They are aimed at including the qualified but at the same time they have the effect of limiting competition in the work force.

A few of the associations accept members qualified at both the baccalaureate-or-higher level and at the associate degree level. For example, the American Medical Record Association has registered record librarians, accredited record technicians, and other interested persons in almost equal numbers on its membership rolls. The membership of the American Occupational Therapy Association is made up of about 9,600 registered occupational therapists and 1,500 certified occupational therapy assistants. The National Environmental Health Association includes about 6,000 sanitarians and 200 sanitarian technicians. On the other hand, some of the emerging or new occupations such as dietary technician and physical therapy assistant are not accepted as members in the professional associations in their fields, nor are they numerous enough to form separate associations.

For many professional associations there is the basic requirement of graduation from an AMA-approved program in the specific field. This is true, for example, for physical therapists to join the American Physical Therapy Association. An additional requirement for membership may be registration or certification by a nongovernment agency, which implies a period of supervised experience and successful completion of the registry examination. Thus the American Society of Radiologic Technologists is open only to registered radiologic technologists—R.T.(ARRT)'s.

Association membership may represent nearly all persons employed in the specific health field—occupational therapists as in the case of the American Occupational Therapy Association, or a smaller portion of those carrying the job title—radiologic technologists as in the case of the American Society of Radiologic Technologists. Persons who could qualify for membership may not choose to belong for various reasons, while many others working in the field do not have the qualifications essential for membership.

Since associations often maintain records on current and past members, they are a source of information on manpower supply. They tend to keep in their files the names of former members in the event such persons may decide to reactivate their membership at a later date. Current members are those paying dues. Association mailing lists of members thus provide identification of qualified personnel and their geographic location, as in the case of the American Dietetic Association and the American Physical Therapy Association. Some information on employment status and other items may also be obtained at the time of renewal of membership, as in the case of the American Speech and Hearing Association. Membership lists usually are available, for general distribution or limited to paid members. Directories published periodically may list members, or members and non-members of the association.

Certification and Registration

For some professions there are committees, boards, or registries concerned with distinguishing quality of personnel. The certifying function may be within the professional association as in the case of dental assistants, dietitians, medical record librarians, and occupational therapists. Or there may be agencies set up independent of (but obviously related to) the profession being controlled; examples are the Board of Registry of Medical Technologists of the American Society of Clinical Pathologists, American Registry of Inhalation Therapists (sponsored by physicians and inhalation therapists), and American Registry of Radiologic Technologists (sponsored by physicians and radiologic technologists).

Persons who meet certain requirements of education, experience, and competency and who successfully complete the examination given by the certifying agency may use special professional designations. Some of these designations for allied health workers are listed below:

R.D.	Registered Dietitian
RRL	Registered Record Librarian
MT(ASCP)	Registered Medical Technologist
O.T.R.	Registered Occupational Therapist
PT(ARPT)	Registered Physical Therapist
C.D.A.	Certified Dental Assistant
C.D.T.	Certified Dental Technician
A.R.I.T.	Registered Inhalation Therapist
ART	Accredited Record Technician
C.O.T.A.	Certified Occupational Therapy Assistant
R.T.(ARRT)	Registered Radiologic Technologist

The complete list appears in Appendix B, table 3.

The certifying organizations not only qualify persons who meet their standards but they usually know of persons working toward qualification. They maintain lists of all persons registered to date, as well as those currently registered. The registry of medical record librarians, for example, since its founding in 1932 has qualified a total of 6,400 persons; of these, about 4,000 are currently registered and active in their profession. The ASCP Board of Registry of Medical Technologists has qualified 81,000 since 1928; approximately 42,000 are now registered and professionally active. The American Registry of Radiologic Technologists has registered nearly 72,000 since 1922, with some 40,000 registrants in active practice at the present time.

The lists of qualified personnel may be published by the registry or the professional association. In the case of The National Roster of Certified Inhalation Therapy Technicians, 1970 (*9*, *10*), the Technician Certification Board of the American Association for Inhalation Therapy (AAIT) has certified that each of the 75 members of the national roster has met the following standards:

(1) Has passed a written examination administered at the Fifteenth Annual Meeting of AAIT, November 1969, which examined the candidate as to his technical skills, clinical knowledge, and professional competence in the practice of inhalation therapy.

(2) Is a member of the American Association for Inhalation Therapy and has joined in its purposes to advance the science, technology, ethics, and art of inhalation therapy; to promote better education for aspirants to the field and continuing education for members; and to cooperate with other professional groups and the public in establishing the highest possible standards of patient care in the practice of inhalation therapy.

(3) Has fulfilled one of the following education and experience requirements:

A. Has a high school education or, in the judgment of the Credentials Committee of the Technician Certification Board, an equivalent education, plus two years of experience in inhalation therapy, under medical supervision.

B. Or: is a graduate of an Inhalation Therapy Program, on an Associate Degree level, approved by the Joint Review Committee for Inhalation Therapy Education in collaboration with the AMA Council on Medical Education.

The first standard cited above is the successful completion of a written examination given by the registry. The proportion of applicants that pass varies considerably from one field to another. For example, at least 90 percent of the dietitians, medical record librarians, and medical record technicians who took registry examinations last year were successful, in contrast to about 70 percent of the radiologic technologist candidates. These examination results include persons taking the test for the first time and those repeating for the second time or more. The passing point on the curve is usually determined in relation to first-timers and is set each time by the agency administering the examination to permit only a certain proportion (usually between 70 and 90 percent) to pass. A few registries have their examinations administered by an outside agency, known for its competency in testing services; in this event, the profession participates in the formation of the questions. The written examination is accompanied by a practical examination of technical skills in the case of dental assistants and dental technicians. Both written and oral examinations are taken by inhalation therapist candidates.

Membership in the professional association is the second standard cited for certification. When the registry is a part of the professional association, the applicant may be required to be a member of the association at the time of the registry examination, as in the case of dietitians; this is not true for dental assistants, medical record librarians, and medical record technicians. When the registry is a separate agency, even though the professional association is one of its sponsors, membership in the association may not be necessary; e.g., medical technologists and radiologic technologists. Registration is a requirement for membership in the American Occupational Therapy Association, so that payment of annual dues to AOTA constitutes renewal of the O.T.R.

Education and experience together make up the third standard. Graduation from an approved program in the specific subject matter is a "must" in almost all cases. Only of recent date has there been recognition of an equivalent to such education, as cited for inhalation therapy technicians.

It is the usual practice in establishing the initial registry, and for a specified time thereafter, to blanket in experienced persons who may have lesser education than the current standard, thus substituting competence in actual practice for formal training. An example of the grandfather clause ending with a moratorium on the qualification privileges is the program for the registration of dietitians which was initiated June 1, 1969 and held open for three months. During that time 19,000 of the 21,000 members of the American Dietetic Association applied for registration without taking the written examination and thus became R.D.'s.

One feature of the registry of dietitians that is noteworthy is the continuing education requirement which must be met every 5 years for a member's registration to remain in effect. Two dental occupations—dental assistant and dental laboratory technician—require evidence of continuing education upon renewal of certification. Few other health professions have a refresher requirement with the objective of maintaining or increasing the competency of the practitioner after graduation and registration. It might be mentioned that State licensure, like certification, could and sometimes does foster continuing education.

For sanitarians there is an American Intersociety Academy for Certification of Sanitarians, founded in 1966. About 300 sanitarians have been certified as diplomates of the Academy (out of approximately 6,000 members of the National Environmental Health Association and probably as many as 15,000 employed sanitarians in 1970). The basic requirements are a Master's degree and State registration (available in 35 States), and successful completion of written and oral examinations administered by the Academy. These standards are obviously high in relation to the qualifications of persons working in the field.

Specialty Certification

Upgrading action within the profession for better statement of competence may lead to certification of specialists. This is evident for medicine,

dentistry, and veterinary medicine, and is being studied for optometry (*11*). Assuring quality care as a result of graduate education is usually the function of American Specialty Boards. To be a diplomate of an American Board requires graduate education, a period of supervised experience, recognized competency, and the successful completion of an examination given by the Board.

Among the allied health professions and occupations there is little specialization. However, recognition of special fields for medical technologists is provided by the Board of Registry of Medical Technologists (ASCP) which certifies persons as technologists in blood banking, chemistry, microbiology, and nuclear medicine. Specialties recognized by the American Registry of Radiologic Technologists include the more generalized diagnostic X-ray technology, nuclear medicine technology using radioactive isotopes, and radiation therapy technology using radiation producing devices. The last two specialities were recognized by the Registry in 1962. Whether technologists in blood banking, nuclear medicine, and radiation therapy are to function as specialists as noted here or are to be counted as separate occupational categories requires careful attention.

The Role of Professional Associations

In this discussion of the role of professional associations in relation to accreditation and certification, emphasis is placed on the allied health professions and occupations. Many of the issues and comments are also applicable to health professions other than those referred to as allied health.

Allied health professions constitute a significant number of persons who perform a wide range of functions in the delivery of health services. Allied health workers in medical, dental, and environmental health fields in 1970 total about 925,000, and when added to the more than 1.2 million nursing auxiliaries — licensed practical nurses, nurse aides, orderlies, and attendants—make up more than half of all 3.9 million persons employed in health occupations. Projections to 1980 show that while traditional health professions such as medicine, dentistry, nursing, optometry, and pharmacy are expected to increase by about one-fourth, the numbers of people working in other health occupations will increase by one-half and will make up a greater part of the total manpower pool then they did in 1970.

Still the supply of allied health workers is expected to be nearly 25 percent short of our needs. Since they extend the functions of physicians and other health practitioners, in addition to performing an enormous variety of tasks in modern health care, it is important to take a close look at the control over allied health workers through the training of new members and certifying the competence of those allowed to practice, which in turn affect the quality of services available to the nation.

1. Proliferation of Occupations

More than 100 occupations involved with patient care, community health, and environmental health meet the general definition of allied health manpower. There are sometimes two or three levels of personnel in any given field, with the superior professionals not always cognizant of the knowledges and skills of their subordinates. It is difficult to conceive of career ladders for upward mobility when each level forms its own professional association.

Maximum use of health manpower requires identification and evaluation of the functions to be performed. Task analysis and investigation of skills essential for the delivery of services can serve as the basis of delegation of many duties to persons with less training than those who now perform them. Guidelines for the development of new health occupations provide for documentation of the need for, and scope of duties of, the new occupation and consideration of the extent to which existing health occupations could fill that role (*12, 13*). Priority should be given to the encouragement of innovation and progressive development in each area.

There has been and should continue to be a valid plurality of interests connected with each of the health professions. However, the pretensions of each group or sub-group need to be tested against fact, reality, and the larger public interest. Although tensions among groups (and within groups) do and will continue to exist, an attempt must be made to reconcile these tensions within a fair and equitable framework and in the larger common interest.

2. Uses of Accreditation

Many allied health professions have followed the pattern of physicians and other high-level practitioners in controlling the training of their new members through accreditation of educational programs and attempting to prevent nonaccredited schools from functioning. Professionally-accredited programs not only raise the beginning competence of the workers but also provide a fairly standard set of skills, thereby enabling

movement from one institution to another in search of better jobs. On the other hand, some State licensure statutes inhibit the recognition of educational programs offered in other States and thus hinder reciprocity.

Accreditation must be used as the primary management device for validating and improving the quality of education for the various allied health professions. Accreditation must not, on the other hand, be employed as a device to stifle the orderly and valid development of educational programs. A related issue is the accreditation schism that exists between non-profit and proprietary educational institutions. It is perhaps time to rethink and consider means for enabling both groups to contribute qualified personnel for allied health occupations.

The proliferation of accrediting agencies places a burden of time, cost, and effort on the institution being surveyed. Some attempt should be made to pull together the various bodies concerned with allied health programs, for a combined approach to accreditation—if not for all programs, at least for a clustering within the field (*14*).

Accreditation is an exceptionally complex mechanism, and it should have an adequate base of consensus among all the groups which it affects. Control over accreditation must be vested in the community and not with any one segment of the community. The future is going to demand that the public have representation on the governing councils of accrediting bodies.

3. Voluntary Versus Federal Accreditation

Accreditation in post-secondary education is a fragmented, disjointed effort, with many of the current policies, procedures, and standards being subjected to increasing criticism. This situation produces numerous problems for the Federal Government in its efforts to administer funding assistance programs for education (*15*).

Legislation passed during the last 20 years has consistently deferred to accreditation as the primary base criterion for Federal funding. Furthermore, there has been a continuing acceptance of accreditation as a standard for evaluation by both Congress and the general public without a full understanding of its concepts or an adequate appraisal of its compatability with legislative intent.

With the allocation of significant amounts of public funds to students and to institutions through the eligibility for funding status provided by accrediting associations, accreditation carries with it the burdensome responsibility of public trust. Accrediting associations are functioning today in a quasi-governmental role, and their activities relate closely to the public interest.

The central issue is the degree of influence which voluntary agencies will be able to exert. Most of us desire to see nongovernmental accreditation flourish as a preferable alternative to accreditation by the Federal or State Governments. At the same time, we recognize the potential impact of a recent proposal, Senate bill S. 3973 introduced in June 1970, namely, that national guidelines should be provided to "assure adequate training of radiologic technicians by providing for the establishment of criteria and minimum standards for accrediting schools for the training of radiologic technicians" (*16*).

It is urgent that first priority be given to the development and implementation of the national Study of Accreditation of Selected Health Educational Programs, guided by appropriate educational groups from within and without the health field. This comprehensive study might well serve as a valuable chart facilitating our ability to meet both present and future needs. In this regard, we compliment the American Medical Association Council on Medical Education, the Association of Schools of Allied Health Professions, and the National Commission on Accrediting who are now co-sponsoring the study through a grant from the Commonwealth Fund (*17*, *18*, *19*).

4. Uses of Certification

Professional association efforts are mainly concentrated on raising the quality of workers in their field. The certification procedure is designed to assure that there will be a selection of well-trained professionals who have met established standards of education and experience.

Many associations have set minimum certification requirements for beginning workers which in effect attempt to prevent employment of uncertified persons. The certification process is helpful to the potential employer as a guarantee of quality, rather than his having to judge from the educational and experience background of each worker. Health care administrators and other employers

should contribute to the establishment of certification standards.

Certification provides the worker with an orientation to his profession. This should result in a professional attitude and efforts to improve his competence. The prestige attached to certification makes the worker feel he is the best qualified to do the work in his field. However, the employer may have an over-qualified individual with resulting job dissatisfaction and a high turnover rate.

Many of the registries started with persons already working in the occupation who became certified under the grandfather clause. The older workers tend not to meet the present level of training required for certification. Current practice indicates that any new registry should have a definite short time limit to the grandfather clause, ending with moratorium on the qualification privileges.

Whether the professional association can control the quality of performance of its members, once certified, is open to question. For instance, when the recipient has ceased to pay annual dues to the registry and/or professional association, there is some question of his continued use of the special designation and the implied proof of quality. It would seem desirable to have renewal of registration contingent upon the demonstration of maintained competency as evidenced by continuing education, experience in the field, or successful completion of an appropriate test.

5. Certification Examinations

For initial registration, some consideration should be given to obviating the necessity of taking a written examination for graduates of approved programs. That the head of the program certifies that the individual has completed the course work outlined in the essentials should be sufficient without further testing. Some curriculums are constructed and instruction is provided specifically for passing the registry test.

More emphasis should be placed on actual proficiency required for delivery of services. If the examination is a valid measure of proficiency, applications should be acceptable from persons who are not graduates of approved programs but who have gained their knowledge and skill through experience and other endeavors. In reality, many of the written examinations test book knowledge instead of measuring the proficiency required for the delivery of services.

The proportion of candidates who successfully complete the written examination at any given time is determined by a passing point on the curve or an established numerical score. Either method will result in the failure of persons who might have passed a similar examination at a different time.

It would seem desirable to have more uniformity among the registries in the testing of applicants, as to the pertinence of the examination per se and the grading systems that determine competency for the work force.

6. Educational Programs

Much allied health manpower education grew out of on-the-job training in hospitals, where workers were important manpower resources during their training. From this developed formal academic education with supervised clinical practice. Many courses are now being offered in 2- and 4-year colleges which affiliate with hospitals and clinics for the clinical aspects of the program.

Some of the approved programs developed in collaboration with the professional associations do not offer opportunity for college credit. In addition there are those proprietary schools which do not meet established educational requirements or which charge excessive tuition. Young people who invest their time and money in non-qualified courses which are advertised as leading to health careers often find only limited employment opportunities.

The existing educational programs are, more often than not, characterized by poor communication, cooperation, and coordination among educators and representatives in the health field, who have responsibilities for planning and implementing training programs and for utilizing the trained personnel. This inefficient organization results in wasteful use of faculty, facilities, and equipment, all of which are in short supply and which must be utilized to their fullest capacity if we are going to significantly increase the output of allied health manpower. Some attention is being given to consideration of core curriculums, core courses, and other ways to consolidate training opportunities. At this point, however, the efforts are fairly superficial and scattered throughout the allied health educational field.

Concentrated examination, analysis, and demonstration of possible methods to better organize

and conduct allied health training are needed. Certainly it behooves the professional associations to validate curriculum content and duration in relation to knowledge and skills needed for work performance, without unduly over-educating for the job to be done.

7. Educational Equivalency and Work Proficiency

Thinking in the area of manpower supply must include recognition of work experience, development of career ladders for upward mobility, and provision for adequate geographic movement.

It is important that the educational programs be responsive to manpower needs and take advantage of knowledge and skills gained outside of the college setting by military corpsmen and others interested in health careers in civilian life. The professional community should encourage a reevaluation of allied health educational programs to provide comparable academic standing to students whose knowledge can be measured by educational equivalency examinations.

Better utilization and retention of manpower already employed will depend largely upon the success of efforts to enhance career mobility, both vertically and horizontally. This can be accomplished only by removing as many artificial or unnecessary obstacles to advancement and change as possible, consistent with the maintenance of adequate professional standards of service. In turn, the success of these efforts may be enhanced by the availability, efficacy, and acceptance of equivalency and proficiency testing programs for health personnel.

Basic to the concept of career mobility is the need to evaluate each individual's present abilities, regardless of the route he traveled to attain them. The goal of such evaluation is to encourage the advancement of personnel up the career ladder to levels of responsibility commensurate with their knowledge and skills. Proficiency and equivalency testing programs can serve as a basis for this evaluation.

Proficiency testing assesses an individual's knowledge and skills related to the actual demands of an occupational specialty or a specific job. Equivalency testing equates learning gained outside of formal training programs with the requirements of courses that constitute recognized formal training programs. There seems to be no reason why such mechanisms cannot be incorporated into systems of accreditation and certification.

Conclusion

Professional associations are to be commended for taking leadership in the concern for quality of health manpower. Their nationwide influence has attempted to insure the entry into their respective professions only of persons who have met the requirements which they deem necessary for practice. Their standards are voluntary in nature and thus are not intended to be binding requirements for an employee or employer. Through the special designation or appropriate letters which are the property of the group, the professional meeting the standards can be identified as "qualified." If the consumer knows the worth of the qualification —and this is open to question—he can distinguish the qualified from the presumed unqualified. Such a qualification raises the status (and usually the earning powers) of the profession. Sometimes the profession has the effect of a monopoly and what qualifications of personnel are acceptable is of tremendous importance to health care and services. With the rapid growth of health professions and occupations, the professional associations will do well to study and justify their practices and to provide information for the benefit of the consumer and the larger public interest. Much remains to be done by professional associations and by other means. The importance of better credentialism of new occupations and accreditation of new programs for allied health manpower is self-evident and urgent.

Our goal in preparing this publication was to provide a conceptual basis for a better understanding of allied health manpower problems. Strong leadership is essential now to bring order out of the growing chaos related to the training and employment policies and practices of allied health manpower.

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Appendix A

Selected Information About 16 Allied Health Occupations

Dental assistant
Dental hygienist
Dental laboratory technician
Dietitian
Dietetic technician-assistant
Inhalation therapist-technician
Medical record librarian
Medical record technician
Medical technologist
Occupational therapist
Occupational therapy assistant
Physical therapist
Physical therapy assistant
Radiologic technologist-technician
Sanitarian
Sanitarian technician

Source: Information provided by the national professional associations and organizations to the Divisions of Dental Health and Allied Health Manpower, Bureau of Health Manpower Education, NIH, fall 1970.
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DENTAL ASSISTANT

Manpower: Between 90,000 and 95,000 employed in 1970

Professional association

American Dental Assistants Association, Chicago, Ill.
Founded in 1924
About 14,100 members in 1970, of whom an estimated 11,900 are professionally active

Certification or registration of individuals by nongovernment agency

Certifying Board of the American Dental Assistants Association
Program initiated by ADAA in 1948
Requirements for certification adopted by the American Dental Association in 1960
Designation of Certified Dental Assistant—C.D.A.
11,553 certified since 1960; 5,607 certified in 1970
Basic requirement of graduation from a training program for dental assistants accredited by the American Dental Association; ADAA membership not required
Written and practical examination administered by the certifying board
Examination results last year: 2,509 examined, 1,904 passed
An annual fee and evidence of continuing education are required for renewal of certification

Accreditation of educational programs

Council on Dental Education of the American Dental Association, Chicago, Ill.
Standards adopted in 1960; latest revision in 1969
154 programs for dental assistants as of October 1969
4,972 student capacity in the first year
5,074 students enrolled in 1- and 2-year programs in 1969–70; 4,188 in first year and 886 in second year
2,175 graduates in 1969, awarded certificate or associate degree

State licensure or registration of individuals

Licensure of dental assistants not required
A policy of registration for dental assistants who perform expanded functions was recently adopted in one State

DENTAL HYGIENIST

Manpower: About 16,000 employed in 1970

Professional association

American Dental Hygienists' Association, Chicago, Ill.
Founded in 1923
About 9,100 members in 1970, a large proportion of whom are professionally active
Only licensed dental hygienists are eligible for membership

Certification or registration of individuals by nongovernment agency

None

Accreditation of educational programs

Council on Dental Education of the American Dental Association, Chicago, Ill.
Standards adopted in 1947; latest revision in 1965
100 programs for dental hygienists as of October 1969
3,517 student capacity in first year
5,931 students enrolled in 2- and 4-year programs in 1969–70; 3,301 in first year and 2,630 in second year of dental hygiene program
2,231 graduates in 1969; includes 424 baccalaureate degrees and 1,807 certificates or associate degrees

State licensure or registration of individuals

License required to practice in all States and the District of Columbia
To qualify for licensure, dental hygiene graduates must pass both a written and a clinical examination administered by a State Board of Dental Examiners.
46 States accept the written examination given by the National Board of Dental Examiners in lieu of the State's own written examination; however, each State still examines the clinical skills of the candidate.

DENTAL LABORATORY TECHNICIAN

Manpower: About 32,000 employed in 1970

Professional association

No national organization of dental laboratory technicians
Dental laboratories may hold membership in National Association of Certified Dental Laboratories

Certification or registration of individuals by nongovernment agency

National Board for Certification in Dental Laboratory Technology, Alexandria, Va.
Requirements for certification established by the American Dental Association in 1957
Program initiated in 1958
Designation of Certified Dental Technician—C.D.T.
6,300 certified and active in 1970
Candidates for certification must have completed high school and be a citizen of the United States or Canada. Persons who have satisfactorily completed an accredited 2-year dental technology education program and 3 years of employment experience, or who have fulfilled experience requirements in lieu of the formal training, may be certified after passing written and practical examinations given by the National Board for Certification in Dental Laboratory Technology.
Written and practical examination administered by the Psychological Corporation, New York, N. Y.
Examination results last year: 380 examined, 315 passed
Annual fee and participation in continuing education required for recertification

Accreditation of educational programs

Council on Dental Education of the American Dental Association, Chicago, Ill.
Standards adopted in 1948; latest revision in 1967
23 programs for dental laboratory technicians as of October 1969
620 estimated student capacity in first year
965 students enrolled in 2-year programs in 1969–70; 596 in first year and 369 in second year
357 graduates in 1969, awarded certificate or associate degree

State licensure or registration of individuals

Licensure of dental laboratory technicians not required
Dental laboratory technicians registered annually in one State

Dental laboratories

Of the 9,000 dental laboratories, 2,300 hold membership in the National Association of Certified Dental Laboratories, Inc., Alexandria, Va.
463 dental laboratories are accredited by the Joint Commission on Accreditation of Dental Laboratories, Chicago, Ill.
Annual registration of dental laboratories required in one State, and dental laboratories must annually file for permit in another State

DIETITIAN

Manpower: More than 30,000 dietitians and nutritionists employed in 1970

Professional association

American Dietetic Association, Chicago, Ill.
Founded in 1917
21,900 members, of whom an estimated 16,000 were professionally active in fall 1970

Certification or registration of individuals by nongovernment agency

ADA Interim Committee on Professional Registration
Program initiated June 1, 1969; "grandfather clause" expired Sept. 1, 1969
Designation of Registered Dietitian—R.D.
20,190 registered in fall 1970, of whom nearly 16,000 are professionally active
Basic requirement of ADA membership
Written examination administered by Psychological Corporation of New York
Results of first examination: 799 examined, of whom 733 passed
Annual renewal of registration via payment of additional fees to ADA
Continuing education within 5 years required for renewal of registration

Accreditation of educational programs

Institutional accreditation of colleges and universities with home economics programs (1,101 baccalaureates in home economics with majors in foods and nutrition and/or institutional management in 1967–68)[1]
Institutional accreditation of colleges and universities with nutrition programs (20 baccalaureates in 1967–68)[1]
65 dietetic internship programs approved by ADA (848 interns in 1969)

State licensure or registration of individuals

None

[1] Data from U. S. Office of Education, National Center for Educational Statistics. Higher Education: Earned Degrees Conferred, 1967–68. OE–54013–68.

DIETETIC TECHNICIAN-ASSISTANT

Manpower: About 25,000 to 30,000 dietetic technicians and assistants employed in 1970[1]

Professional association

Hospital, Institution, and Educational Food Service Society within the structure of American Dietetic Association
Founded in 1960
2,390 members, all professionally active in fall 1970

Certification or registration of individuals by nongovernment agency

None

Accreditation of educational programs[2]

Institutional accreditation of junior and senior colleges with food service programs
Curriculum guide developed by ADA requires registered dietitian as program director and supervised work experience

State licensure or registration of individuals

None

[1] Estimate by American Dietetic Association, with technician considered as mid-management, under the dietitian and over the assistant. About 18,100 dietary services personnel were reported as dietary technicians (including food service supervisors) in the 1969 hospital manpower survey.

[2] ADA correspondence course completed by 1,734 food service supervisors since 1960; 530 enrolled in 1969.

INHALATION THERAPIST-TECHNICIAN

Manpower: Between 12,000 and 14,000 employed in 1970[1]

Professional association

American Association for Inhalation Therapy, Riverside, Calif.
Founded in 1947
About 8,000 members in fall 1970, of whom 7,300 are professionally active

Certification or registration of individuals by nongovernment agency

1) American Registry of Inhalation Therapists, Rochester, N. Y.
sponsored by American Society of Anesthesiologists (ASA)
American College of Chest Physicians (ACCP)
American Association for Inhalation Therapy (AAIT)
Founded in 1961
Designation of Registered Inhalation Therapist—A.R.I.T.
1,278 registered since 1961; about 1,200 professionally active in fall 1970
Basic requirement of graduation from approved program in inhalation therapy plus 1 year supervised experience in inhalation therapy; also associate degree
Written and oral examination administered by the Registry
Examination results 1969: written—1,287 examined, 554 passed
oral—617 examined, 336 passed
Annual dues payable to Registry
Continuing education not required for renewal of registration

2) AAIT Technician Certification Board
Program initiated in November 1969
Designation as Certified Inhalation Therapy Technician
Basic requirement of graduation from approved program in inhalation therapy at associate degree level, or high school education plus 2 years' supervised experience in inhalation therapy; also AAIT membership
Written examination administered by the Board
Examination in September 1970; 1,600 examined, 1,314 passed
Annual renewal of certification via payment of fees to AAIT
Continuing education not required for renewal of certification

Accreditation of educational programs

AMA Council on Medical Education in collaboration with Joint Review Committee for Inhalation Therapy Education—ASA, ACCP, AAIT
Standards adopted in 1962; latest revision in 1967
56 programs in inhalation therapy as of August 15, 1970 (82 as of October 28, 1970). Includes two 4-year and 29 2-year programs with college affiliation
800 student capacity
795 students enrolled in 1969–70 in final 2 years of 4-year program or in 2-year program
254 graduated in 1970

State licensure or registration of individuals

License required to practice in Arkansas and California

[1] About 14,600 inhalation therapists and aides were reported in the 1969 hospital manpower survey.

MEDICAL RECORD LIBRARIAN

Manpower: About 13,000 employed in 1970

Professional association

American Medical Record Association, Chicago, Ill.
(formerly American Association of Medical Record Librarians)
Founded in 1928
10,000 members; 3,500 RRL's, 3,000 ART's, and 3,500 other medical record personnel and interested persons

Certification or registration of individuals by nongovernment agency

AMRA Committee on Education and Registration
Program initiated in 1932
Designation of Registered Record Librarian—RRL
6,400 registered since 1932; 4,100 registered in fall 1970, nearly all of whom are professionally active
Basic requirement of graduation from AMA-AMRA approved program with baccalaureate in medical record administration
Written examination administered by Psychological Corporation of New York
Examination results in 1970: 250 examined, of whom 238 passed
Registration retained regardless of membership in AMRA
Continuing education provision under consideration for renewal of registration

Accreditation of educational programs

AMA Council on Medical Education in collaboration with AMRA
Standards adopted in 1943; 1967 version in process of revision
26 programs in medical record librarianship as of August 1970
300 student capacity in final year
256 students enrolled in 1969–70 in final year of specialized training (after 2nd or 3rd year of college, or 12 months post-baccalaureate)
235 graduated in 1970

State licensure or registration of individuals

None

MEDICAL RECORD TECHNICIAN

Manpower: About 5,000 medical record technicians[1] employed in 1970

Professional association

American Medical Record Association, Chicago, Ill.
(formerly American Association of Medical Record Librarians)
Founded in 1928
10,000 members; 3,500 RRL's, 3,000 ART's, and 3,500 other medical record personnel and interested persons

Certification or registration of individuals by nongovernment agency

AMRA Committee on Education and Registration
Program initiated in 1955
Designation of Accredited Record Technician—ART
4,400 registered since 1955; 3,100 registered in fall 1970, nearly all of whom are professionally active
Basic requirement of graduation from AMA-AMRA approved program with AA degree in medical record technology, or successful completion of 25-lesson AMRA independent home study course
Written examination administered by Psychological Corporation of New York
Examination results in 1970: 949 examined, of whom 863 passed
Accreditation retained regardless of membership in AMRA
Continuing education provision under consideration for renewal of accreditation

Accreditation of educational programs

AMA Council on Medical Education in collaboration with AMRA
Standards adopted in 1953; 1965 version in process of revision
18 programs in medical record technology as of August 1970
250 student capacity in final year
219 students enrolled in 1969–70 in final year of 1- or 2-year program
204 graduated in 1970

State licensure or registration of individuals

None

[1] Includes 3,000 ART's and about 2,000 persons currently taking the AMRA correspondence course. As many as 7,000 records personnel were reported as technicians in the 1969 hospital manpower survey.

MEDICAL TECHNOLOGIST

Manpower: About 45,000 to 50,000 employed in 1970

Professional association

American Society of Medical Technologists, Houston, Texas
Founded in 1932
Open to MT(ASCP)'s and scientifically-related college graduates
About 21,000 members in November 1970, of whom an estimated 19,000 are professionally active

Certification or registration of individuals by nongovernment agency

Board of Registry of Medical Technologists of the American Society of Clinical Pathologists, Chicago, Ill., in conjunction with ASMT
Founded in 1928
Designation of MT(ASCP)
General certification as medical technologist; also specialty certification in blood banking, chemistry, microbiology, and nuclear medicine
81,000 registered since 1928; 56,000 registered in fall 1970, of whom an estimated 42,000 are employed
Basic requirement of graduation from approved program in medical technology, or baccalaureate in science plus 5 years' experience in accredited clinical laboratory; after July 1971 baccalaureate required of all
Written examination administered by the Registry
Examination results last year: 5,653 examined, of whom 4,692 passed
Annual dues payable to Registry
Continuing education not required for renewal of registration

Accreditation of educational programs

AMA Council on Medical Education in collaboration with ASCP and ASMT through the Board of Schools of Medical Technology (ASCP)
Standards adopted in 1936; latest revision in 1968
788 programs in medical technology as of August 1970
8,587 student capacity
5,008 students enrolled in 1969–70 in final year of specialized training (after 3 or 4 years of college)
4,408 graduated in 1970; more than half also received baccalaureate

State licensure or registration of individuals

License or registration required to practice in 10 States: Alabama, California, Connecticut, Florida, Hawaii, Illinois, Maryland, Nevada, Pennsylvania, and Tennessee; also New York City and Puerto Rico
Written examination developed by Professional Examination Service of The American Public Health Service, New York, N. Y.

OCCUPATIONAL THERAPIST

Manpower: More than 7,000 employed in 1970

Professional association

American Occupational Therapy Association, New York, N. Y.
Founded in 1917
Open to O.T.R.'s and C.O.T.A.'s with single fee for annual membership and registration renewal
11,100 members including 9,600 O.T.R.'s, of whom approximately 7,000 are professionally active

Certification or registration of individuals by nongovernment agency

AOTA Committee on Registration and Certification
Program initiated in 1931; by examination since 1945
Designation of Registered Occupational Therapist—O.T.R.
13,900 registered since 1931; 9,600 registered in fall 1970, of whom approximately 7,000 are professionally active
Basic requirement of graduation from AMA-AOTA approved program in occupational therapy plus 6 months' supervised clinical practice
Written examination administered by AOTA; no practical examination
Examination results last year: 719 examined, of whom 638 passed
Continuing education not required for renewal of registration

Accreditation of educational programs

AMA Council on Medical Education in collaboration with AOTA
Standards adopted in 1935; latest revision in 1965
36 colleges with approved programs as of August 1970
900 student capacity
778 students enrolled in 1969–70 in 4th year of O.T. program and 5th and 6th year for students with degree in other than O.T.
(563 students enrolled in clinical practice required for professional registration)
692 graduated in 1969

State licensure or registration of individuals

License required to practice in Puerto Rico but not in any of 50 States or D. C.

OCCUPATIONAL THERAPY ASSISTANT

Manpower: Approximately 1,500 employed in 1970[1]

Professional association

American Occupational Therapy Association, New York, N.Y.
Founded in 1917
Open to O.T.R.'s and C.O.T.A.'s, with single fee for annual membership and certification renewal
11,100 members, including 1,500 C.O.T.A.'s, nearly all of whom are professionally active

Certification or registration of individuals by nongovernment agency

AOTA Committee on Registration and Certification
Program initiated in 1959
Designation of Certified Occupational Therapy Assistant—C.O.T.A.
2,300 certified since 1959 (including 781 via grandfather clause); 1,500 certified in fall 1970, nearly all of whom are professionally active
Basic requirement of graduation from AOTA approved program
No examination at present time; eligible to apply for certification upon recommendation of educational program director
Continuing education not required for renewal of certification

Accreditation of educational programs

AOTA Accreditation Committee
Standards adopted in 1958; latest revision in 1967
26 approved programs as of October 1969; includes 9 Associate Degree programs (an additional 5 pending approval for fall 1970)
About 700 student capacity
About 600 students enrolled in 1969–70
344 graduated in 1969

State licensure or registration of individuals

License required to practice in Puerto Rico but not in any of 50 States or D.C.

[1] About 5,100 occupational therapy personnel were reported as assistants and aides in the 1969 hospital manpower survey.

PHYSICAL THERAPIST

Manpower: About 15,000 employed in 1970

Professional association

American Physical Therapy Association, Washington, D.C.
Founded in 1921
Open only to graduates of AMA-APTA approved programs for physical therapists
14,723 members, of whom about 12,000 were professionally active in fall 1970

Certification or registration of individuals by nongovernment agency

American Registry of Physical Therapists, Chicago, Ill.
Sponsored by American Congress of Rehabilitation Medicine
Founded in 1935; in process of closing, with no new members after Dec. 1971
Designation of Registered Physical Therapist—P.T. (ARPT)
7,500 registered in fall 1970, of whom 6,500 are professionally active
Basic requirement of graduation from AMA–APTA approved program in physical therapy
Written examination administered by the Registry
Examination results last year: 200 examined, of whom 186 passed
Annual dues payable to Registry
Continuing education not required for renewal of registration

Accreditation of educational programs

AMA Council on Medical Education in collaboration with APTA
Standards adopted in 1936; latest revision in 1955
52 colleges with approved programs as of August 1970
1,475 student capacity in final academic year only
1,449 students enrolled in 1969–70 in 4th year of P.T. program, 5th year for post-baccalaureate students, 6th year for students in Master's degree program for initial professional preparation
1,362 graduated in 1969

State licensure or registration of individuals

License required to practice in 49 States, District of Columbia, Puerto Rico, and Virgin Islands. (Exception is Texas.)
Written examination developed by Professional Examination Service of the American Public Health Association, New York, N.Y. in cooperation with APTA

PHYSICAL THERAPY ASSISTANT

Manpower: About 100 employed in 1970 [1]

Professional association

Temporary affiliate membership category within structure of American Physical Therapy Association

Open to graduates of APTA approved programs for physical therapy assistant

Certification or registration of individuals by nongovernment agency

None

Accreditation of educational programs

APTA in process of surveying programs for purpose of accreditation; none approved as of Nov. 1970

About 10 programs operational in 1969–70, with approximately 100 graduates in 1970

About 19 programs operational in 1970–71, with more than 700 students enrolled

State licensure or registration of individuals

License required to practice in 8 States

Written examination developed by Professional Examination Service of the American Public Health Association, New York, N. Y. in cooperation with APTA

[1] Based on graduates in 1970. About 8,700 physical therapy personnel were reported as assistants and aides in the 1969 hospital manpower survey.

RADIOLOGIC TECHNOLOGIST-TECHNICIAN

Manpower: Between 75,000 and 100,000 employed in 1970

Professional association

American Society of Radiologic Technologists, Chicago, Ill.
(formerly American Society of X-ray Technicians)
Founded in 1920
Open only to R.T. (ARRT)'s
About 10,000 members in fall 1970, of whom an estimated 9,000 are professionally active

Certification or registration of individuals by nongovernment agency

1) American Registry of Radiologic Technologists, Minneapolis, Minn.
(formerly American Registry of X-ray Technicians)
sponsored by American College of Radiology and
American Society of Radiologic Technologists

Founded in 1922
Designation of Registered Radiologic Technologist—R.T. (ARRT)
71,692 registered since 1922; 60,980[1] registered in fall 1970, of whom about two-thirds (40,000) are professionally active
Basic requirement of graduation from AMA approved program in radiologic technology
Written examination administered by the Registry
Examination results last year: 6,875 examined, of whom 4,875 passed
Annual dues payable to Registry
Continuing education not required for renewal of registration

2) American Registry of Clinical Radiography Technologists, Enid, Okla.
(also known as American Radiography Technologists)
Founded in 1955
Designation of Registered Radiologic Technologist—R.T. (ART)
5,991 registered as of Jan. 1, 1970; number professionally active not available although employment status requested on annual renewal form
Basic requirement of completion of 2-year training program in radiologic technology
List of acceptable programs not available
Written examination prepared by ART committee and administered by ART personnel qualified as proctors. No regularly scheduled examinations
Examination results last year: about 500 examined, of whom 90 percent passed
Annual dues payable to Registry
Provision for continuing education passed at October 1970 ART Meeting
Will require attendance at one educational seminar per year, when ART annual meeting is held in area

RADIOLOGIC TECHNOLOGIST-TECHNICIAN (Continued)

Accreditation of educational programs

AMA Council on Medical Education in collaboration with
American College of Radiology and
American Society of Radiologic Technologists
Standards adopted in 1944; 1970 revision in process
1,177 programs in radiologic technology as of August 1970. Includes about 375 2-year and 85 3- or 4-year programs with college affiliation.
18,511 student capacity
11,387 students enrolled in 1969–70 in 2-year programs or in last 2 years of 3- or 4-year programs
5,188 graduated in 1970; the number who received baccalaureate is not available

State licensure or registration of individuals

License or certification required to practice in California, New Jersey, New York, and Puerto Rico

[1] Includes 990 also certified in nuclear medicine and 359 also certified in radiation therapy.

SANITARIAN

Manpower: Nearly 15,000 employed in 1970

Professional association

1) National Environmental Health Association, Denver, Colo.
   (formerly National Association of Sanitarians)
   Founded in 1930
   About 6,200 members in fall 1970, including some 6,000 sanitarians, nearly all of whom are professionally active
2) International Association of Milk, Food, and Environmental Sanitarians
   (formerly International Association of Milk and Food Sanitarians)
   Founded in 1911
   About 3,000 members

Certification or registration of individuals by nongovernment agency

American Intersociety Academy for Certification of Sanitarians, Rockville, Md.
sponsored by American Public Health Association
International Association of Milk, Food, and Environmental Sanitarians
National Environmental Health Association
Founded in 1966
Certification as a diplomate of the Academy
313 persons certified in fall 1970
Basic requirement of Master's degree and State registration (if available)
Written and oral examination administered by the Academy
Examination results last year: 14 examined, of whom 13 passed
Biennial dues payable to Academy
Continuing education not required for renewal of certification

Accreditation of educational programs

National Accreditation Council for Environmental Health Curriculums, Denver, Colo., sponsored by NEHA
Founded in 1967
Standards adopted in 1967
36 programs in environmental health science as of October 1970
1,500 student capacity
500 students enrolled in 1969–70 in last 2 years of 4-year program
150 graduated in 1969

State licensure or registration of individuals

License required to practice in 35 States
Model registration act developed in 1960 by Sanitarians Joint Council
Written examination developed by Professional Examination Service of the American Public Health Association, New York, N. Y.

SANITARIAN TECHNICIAN

Manpower: About 80,000 environmental technicians and assistants employed in 1970 [1]

Professional association

National Environmental Health Association, Denver, Colo.
(formerly National Association of Sanitarians)
Founded in 1930
About 6,200 members in fall 1970, including 200 sanitarian technician associate members

Certification or registration of individuals by nongovernnment agency

None

Accreditation of educational programs

National Accreditation Council for Environmental Health Curriculums, Denver, Colo., sponsored by NEHA (to be effective in 1971)
Technician standards adopted in 1970
8 programs in environmental health technology as of October 1970
400 student capacity
300 students enrolled in 1969–70 in final year of 1- or 2-year program
50 graduated in 1969; about half received AA degree

State licensure or registration of individuals

License required to practice in South Carolina

[1] Excludes about 100,000 environmental aides.

Appendix B

Table 1. Health occupations licensed in each State, 1970

Table 2. List of associations recognized for their specialized accreditation of health educational programs, 1970

Table 3. Designation of certification or registration of health manpower by nongovernment agencies, 1970

TABLE 1. HEALTH OCCUPATIONS

State	Number of occupations licensed [1]	Administrator [2] of nursing home	Chiropractor	Clinical laboratory personnel: Director	Clinical laboratory personnel: Medical technologist	Dental laboratory technician	Inhalation therapist	Midwife	Naturopath	Optician
Total	888	49	49	13	10	1	2	23	8	17
Ala.	18	x	x		x					
Alaska	14		x							
Ariz.	18		x					[3]	x	x
Ark.	18	x	x				x			
Calif.	25	x	x	x	x		x	[3]	[3]	x
Colo.	18	x	x					[3]		
Conn.	21	x	x	x				[3]	x	x
Del.	17	x	x	x				x		
D.C.	16	x	x					x		
Fla.	22	x	x	x	x			x	[3]	x
Ga.	18	x	x					x		x
Hawaii	21	x	x	x	x			x	x	x
Idaho	16	x	x							
Ill.	20	x	x	x	x			[3]		
Ind.	17	x	x					x		
Iowa	14	x	x							
Kans.	15	x	x							
Ky.	19	x	x					x		x
La.	16	x						x		
Maine	15	x	x							
Md.	19	x	x	x	x			x		
Mass.	16	x	x							x
Mich.	17	x	x							
Minn.	17	x [2]	x					x		
Miss.	15	x								
Mo.	14	x	x							
Mont.	15	x	x							
Nebr.	16	x	x							
Nev.	19	x	x	x	x					x
N.H.	15	x	x							
N.J.	23	x [2]	x	x	x			x		x
N. Mex.	17	x	x					x		
N.Y.	19	x	x	x						x
N.C.	19	x	x					x		x
N. Dak.	15	x	x							
Ohio	15	x	x					x		
Okla.	18	x	x							
Oreg.	18	x	x						x	
Pa.	16	x	x	x	x					
R.I.	19	x	x	x						x
S.C.	20	x	x			x				x
S. Dak.	15	x	x							
Tenn.	19	x	x	x	x					x
Tex.	15	x	x							
Utah	17	x	x						x	
Vt.	14	x	x							
Va.	20	x	x					x		x
Wash.	19	x	x					x	x	x
W. Va.	17	x	x					x		
Wis.	16	x	x							
Wyo.	16	x	x					x		

[1] For the following 11 professions a license is required to practice in all States and the District of Columbia: Dental hygienist, dentist, engineer (professional), nurse (practical), nurse (professional), optometrist, pharmacist, physician (M.D.), physician (D.O.), podiatrist, and veterinarian.

[2] Also health department administrator in New Jersey and hospital administrator in Minnesota.

[3] New licenses are no longer issued although those in existence may be renewed.

[4] Statutes authorize delegation of functions to be performed under supervision of a physician.

LICENSED IN EACH STATE, 1970

Optical technician	Physical therapist	Physical therapy assistant	Physician assistant	Psychiatric attendant	Psychologist	Radiologic technologist	Sanitarian	Sanitarian technician	Social worker	State
2	50	8	1	3	43	3	35	1	7	Total
	x	x			x		x			Ala.
	x				x					Alaska
	x	x	(4)		x					Ariz.
	x			x	x		x			Ark.
	x		(4)	x	x	x	x		x	Calif.
	x		x		x		x			Colo.
x	x				x		x			Conn.
	x				x					Del.
	x				x					D.C.
	x	x	(4)		x		x			Fla.
	x				x		x			Ga.
	x				x		x			Hawaii
	x				x		x			Idaho
	x				x		x		x	Ill.
	x	(7)			x		x			Ind.
	x									Iowa
	x		(4)		x					Kans.
	x	x			x		x			Ky.
	x				x		x			La.
	x				x					Maine
	x				x		x			Md.
	x						x			Mass.
	x			x	x		x			Mich.
	x				x					Minn.
	x				x		x			Miss.
	x									Mo.
	x						x			Mont.
	x				x		x			Nebr.
	x				x		x			Nev.
	x				x					N.H.
	x				x	x	x			N.J.
x	x				x		x			N. Mex.
	x				x	x			x	N.Y.
	x	x	(4)		x		x			N.C.
	x				x					N. Dak.
	x									Ohio
	x	x	(4)		x		x		x	Okla.
	x	x			x		x			Oreg.
	x									Pa.
	x				x		x		x	R.I.
	x				x		x	x	x	S.C.
	x						x			S. Dak.
	x				x		x			Tenn.
	(7)	(7)			x		x			Tex.
	x				x		x			Utah
	x									Vt.
	x	x			x		x		x	Va.
	x				x		x			Wash.
	x				x		x			W. Va.
	x				x		x			Wis.
	x				x					Wyo.

Source: Pennell, M. Y., and Stewart, P. A. State Licensing of Health Occupations. Public Health Service Pub. No. 1758. U.S. Department of Health, Education, and Welfare; National Center for Health Statistics. Washington, Government Printing Office, 1968. Pp. 4–5, updated to 1970.

Table 2. LIST OF ASSOCIATIONS RECOGNIZED FOR THEIR SPECIALIZED ACCREDITATION OF HEALTH EDUCATIONAL PROGRAMS, 1970

ALLIED MEDICAL HEALTH EDUCATION
(medical laboratory technician education)
Accrediting Bureau for Medical Laboratory Schools
Philip Lewis, Administrator
166 East Superior Street, Chicago, Illinois 60611
(programs for medical technologist, occupational therapist, physical therapist, medical record librarian, medical record technician, and radiologic technologist-technician)
American Medical Association, Council on Medical Education
C. H. William Ruhe, Secretary
535 North Dearborn Street, Chicago, Illinois 60610

ANESTHESIOLOGY
(professional schools)
American Association of Nurse Anesthetists
Bernice O. Baum, Executive Director
111 East Wacker Drive, Chicago, Illinois 60601

DENTISTRY
(programs leading to DDS or DMD degrees, and programs for dental hygienist, dental assistant, and dental laboratory technician)
American Dental Association
John M. Coady, Secretary
Council on Dental Education
211 East Chicago Avenue, Chicago, Illinois 60611

HOSPITAL ADMINISTRATION
(graduate degree programs in hospital administration)
Accrediting Commission on Graduate Programs in Hospital Administration
Gary L. Filerman, Executive Director
One Dupont Circle, N.W., Suite 420, Washington, D.C. 20036

MEDICINE
(programs leading to M.D. degree)
Liaison Committee on Medical Education
representing the Council on Medical Education, AMA, and the Executive Council, AAMC
(In even numbered years)
C. H. William Ruhe, Secretary
Council on Medical Education
American Medical Association
535 Dearborn Street, Chicago, Illinois 60610
(In odd numbered years)
Robert E. Berson, Executive Director
Association of American Medical Colleges
One Dupont Circle, N.W., Suite 200, Washington, D.C. 20036

NURSING
(professional and practical nurse programs)
National League for Nursing, Inc.
Margaret E. Walsh, General Director and Secretary
10 Columbus Circle, New York, New York 10019
(practical nurse programs)
National Association for Practical Nurse Education and Service, Inc.
Rose G. Martin, Executive Director
1465 Broadway, New York, New York 10036

OPTOMETRY
(professional schools)
American Optometric Association
Charles G. Lile, Executive Secretary
Council on Optometric Education
7000 Chippewa Street, St. Louis, Missouri 63119

OSTEOPATHIC MEDICINE
(programs leading to D.O. degree)
American Osteopathic Association
Lawrence W. Mills, Director
Office of Education
212 East Ohio Street, Chicago, Illinois 60611

PHARMACY
(professional schools)
American Council on Pharmaceutical Education
Fred T. Mahaffey, Secretary
77 West Washington Street, Chicago, Illinois 60602

PODIATRY
(baccalaureate and graduate degree programs)
American Podiatry Association
John L. Bennett, Director
Council on Podiatry Education
20 Chevy Chase Circle, N.W., Washington, D.C. 20015

PSYCHOLOGY
(doctoral programs in clinical and counseling psychology)
American Psychological Association
William L. Simmons, Acting Administrative Officer for Educational Affairs
1200 17th Street, N.W., Washington, D.C. 20036

PUBLIC HEALTH
(master's degree programs in community health education and graduate professional schools of public health)
American Public Health Association, Inc.
——, Director of Professional Education
Committee on Professional Education
1740 Broadway, New York, New York 10019

SOCIAL WORK
(graduate professional schools)
Council on Social Work Education
Frank M. Loewenberg, Director
Division of Educational Standards and Accreditation
345 East 46th Street, New York, New York 10017

SPEECH PATHOLOGY AND AUDIOLOGY
(master's degree programs)
American Speech and Hearing Association
Stanley Ainsworth, Chairman
Education and Training Board
American Boards of Examiners in Speech Pathology and Audiology
9030 Old Georgetown Road, Washington, D.C. 20014

VETERINARY MEDICINE
(programs leading to DVM and VMD degrees)
American Veterinary Medical Association
W. M. Decker, Director of Scientific Activities
Department of Education and Licensure
600 South Michigan Avenue, Chicago, Illinois 60605

Source: U.S. Department of Health, Education, and Welfare; Office of Education, Bureau of Higher Education, Accreditation and Institutional Eligibility Staff. December 1970.

Table 3. DESIGNATION OF CERTIFICATION OR REGISTRATION OF HEALTH MANPOWER BY NONGOVERNMENT AGENCIES, 1970

Health Field and Occupation	*Designation*	*Agency*
CLINICAL LABORATORY SERVICES		
Clinical Chemist	Diplomate	American Board of Clinical Chemistry
Microbiologist	"	American Board of Microbiology
Medical Technologist [1]	MT(ASCP)	Board of Registry of Medical Technologists of the American Society of Clinical Pathologists
Cytotechnologist	CT(ASCP)	"
Histologic Technician	HT(ASCP)	"
Certified Laboratory Assistant	CLA(ASCP)	"
Medical Laboratory Technician	MLT(ASCP)	"
DENTISTRY AND ALLIED SERVICES		
Dentist	Diplomate	8 specialty boards recognized by American Dental Association
Certified Dental Assistant	C.D.A.	American Dental Assistants Association Certifying Board
Certified Dental Technician	C.D.T.	National Board for Certification in Dental Laboratory Technology
DIETETIC AND NUTRITIONAL SERVICES		
Registered Dietitian	R.D.	American Dietetic Association
ENVIRONMENTAL CONTROL		
Environmental Engineer [2]	Diplomate	American Academy of Environmental Engineers
Sanitarian	"	American Intersociety Academy for Certification of Sanitarians
Health Physicist	"	American Board of Health Physics
Industrial Hygienist	"	American Academy of Industrial Hygiene
LIBRARY SERVICES		
Medical Librarian [3]	Certified	Medical Library Association
MEDICAL RECORDS		
Registered Record Librarian	RRL	American Medical Record Association
Accredited Record Technician	ART	"
MEDICINE AND OSTEOPATHIC MEDICINE		
Physician	Diplomate	20 primary specialty boards recognized by American Medical Association
Osteopathic Physician	"	12 specialty boards recognized by American Osteopathic Association

OCCUPATIONAL THERAPY		
Registered Occupational Therapist	O.T.R.	American Occupational Therapy Association
Certified Occupational Therapy Assistant [3]	C.O.T.A.	"
OPTOMETRY, OPTICIANRY, AND OTHER OCCULAR SERVICES [4]		
Orthoptist	Certified	American Orthoptic Council
ORTHOTIC AND PROSTHETIC TECHNOLOGY		
Orthotist	Diplomate	American Board of Certification in Orthotics and Prosthetics
Prosthetist	"	"
PHYSICAL THERAPY		
Registered Physical Therapist	P.T.(ARPT)	American Registry of Physical Therapists
RADIOLOGIC TECHNOLOGY		
Registered Radiologic Technologist [5]	R.T.(ARRT)	American Registry of Radiologic Technologists
	R.T.(ART)	American Registry of Clinical Radiography Technologists
SECRETARIAL AND OFFICE SERVICES		
Medical Office Assistant	Certified	American Association of Medical Assistants
SOCIAL WORK		
Social Worker [3]	Certified	Academy of Certified Social Workers
SPECIALIZED REHABILITATION SERVICES [6]		
Certified Corrective Therapist	C.C.T.	American Board for Certification of Corrective Therapists
Registered Music Therapist [3]	R.M.T.	National Association for Music Therapy
SPEECH PATHOLOGY AND AUDIOLOGY		
Speech Pathologist	Certified	American Speech and Hearing Association
Audiologist	"	"
VETERINARY MEDICINE		
Veterinarian	Diplomate	7 specialty boards recognized by American Veterinary Medical Association
MISCELLANEOUS HEALTH SERVICES		
Registered Inhalation Therapist	A.R.I.T.	American Registry of Inhalation Therapists
Certified Inhalation Therapy Technician [7]	Certified	American Association for Inhalation Therapy Certification Board
Registered Electroencephalographic Technologist	R. EEG T.	American Board of Registration of Electroencephalographic Technologists
Certified Operating Room Technician	C.O.R.T.	Association of Operating Room Technicians Certification Board

[1] Specialty certification as technologists in blood banking, chemistry, microbiology, and nuclear medicine. See also National Registry in Clinical Chemistry and National Registry of Microbiologists.

[2] Four subspecialties: air pollution control, industrial hygiene, radiation and hazard control, and sanitary engineering.

[3] No certifying examination required.

[4] For ophthalmic assistant the American Registry of Ophthalmic Medical Assistants is more like a professional society than a true registry.

[5] Specialty certification as technologists in diagnostic radiology, nuclear medicine, and radiation therapy.

[6] For recreation therapist the National Therapeutic Recreation Society maintains a "registry" of persons so employed.

[7] Statute enacted in 1971.